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☞ *See Advertisement on last page.*

SONG OF THE ARTIZAN.

BY THOMAS DUNN ENGLISH.

Sing, comrades, sing!
We are part of the State, who labor,
As well as our wealthy neighbor,
And each, in his sphere, a king.
We laugh when the rich mention
Their wonderful condescension,
In taking our hands with dainty grips,
Undaunted by labor's crime,
And giving us love, on their lying lips,
About the election-time.
Sing, comrades, sing!
We are part of the State, who labor,
As well as our wealthy neighbor,
And each, in his sphere, a king.

Sing, comrades, sing!
Not alone in the workshop's clamor,
When wielding the saw and hammer,
Is each of us here, a king.
For as part of our noble nation,
We stand in a glorious station,
And learn to think, at every clink,
Whatever the fools may say;
We are bound to the State with a golden link
And force it on its way.
Sing, comrades, sing!
We are part of the State, who labor,
As well as our wealthy neighbor,
And each, in his sphere, a king.

Sing, comrades, sing!
We are lords of a mighty nation.
Her glory is our creation,
And each is as high as a king.
For we set the STATE in motion,
As kings do over the ocean;
And in never a deed may our rulers speed
Till we say how and when—
For we feel in our power and purpose strong,
And we know that we are men.
Sing, comrades, sing!
We are part of the State, who labor,
As well as our wealthy neighbor,
And each, in his sphere, a king.

LEARN TO WAIT.

'Tis said that life is short and vain—
'Tis long enough one truth to gain,
A truth as clear, as daylight plain—
Learn to wait.

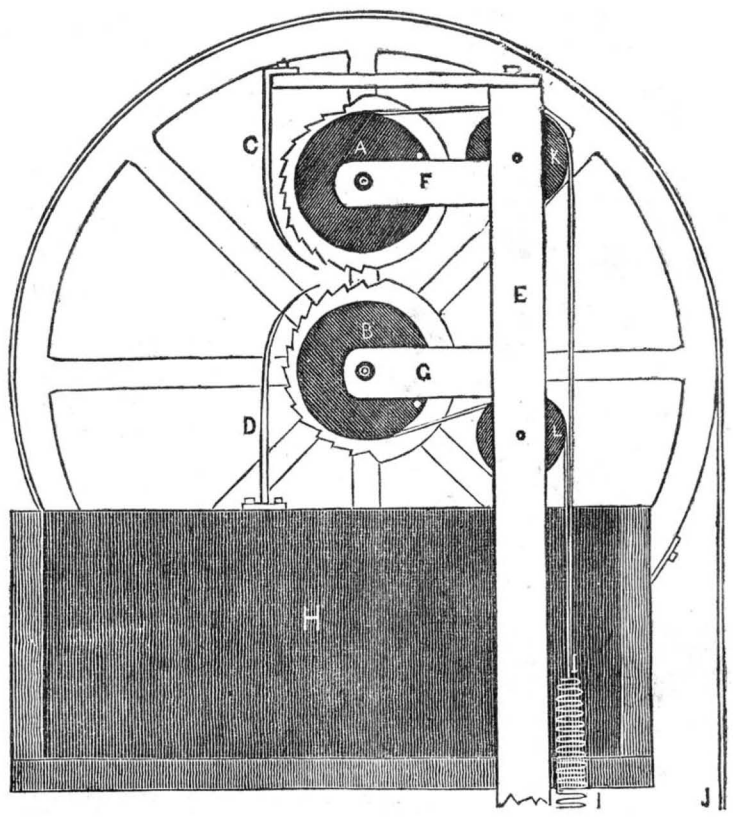
Would'st thou on high behold thy name,
Enroll'd upon the list of fame,
And all thy actions rank'd the same,
Learn to wait.

Not idly wait, but *action* take,
And all thy soul courageous make—
If not for thee, for other's sake,
Learn to wait.

Make every moment richly bear
A record clear of actions fair,
Of all that's done, and all thou'lt dare.
Learn to wait.

Make waiting, watching; and thou'll find
A better heart, a better mind,
To all sincere, to all more kind;
Learn to wait.

NAIL SWEDGING MACHINE.



INTRODUCTION —Every carpenter and builder is aware of the difficulty of making the ordinary cut nails hold firmly, especially in the boarding and shingling of roofs which are exposed to variable action of the weather, or in fastening packing boxes in which the nails have to be driven into the end of the boards and in the direction of the grain thereof. We have in a former number spoken of the advantages that might be derived from having two sides of each nail barbed, or formed with notches like the teeth of a ratch; and several carpenters have expressed a disposition to pay two cents per lb. extra for such nails, to be used where firmness is required. We are now enabled to present the plan of a machine of the full size for swedging common nails to the shape above mentioned, and which may be operated successfully by small boys of 8 or 10 years, and who could make a fair business at half a cent per lb.

EXPLANATION.—A and B are cylinders of hardened steel about two inches long supported by the arms F G, which project horizontally from the post E: the rear ends of the cylinders being supported by two other arms parallel to the first. The peripheries of these cylinders are creased longitudinally, to the extent of half the circumference of each, as shown in the engraving, and the teeth thus formed are farther from the centre on one side of the cylinder than on the other. To the rear end of the shaft B, is attached a band wheel, to the periphery of which is attached a strap J, which descends to a treadle, to be operated by the foot, but which requires no description. The front of each cylinder is reduced to the form of a grooved pulley A B, and a cord from each of these grooves passes over the pulleys K L and unite at I, where they are connected to a vertical helical spring, the draught of which tends to turn each cylinder backward till checked by the contact of two small pins (which project from the ends of the cylinders) with the arms F and G. Two protectors C and D, made of metallic plate, are placed in front of the cylinders, and are attached, the one to a cap piece projecting from the head of the post, and the other to the receptacle box H, which receives the nails when finished.—The point of a nail being inserted between the protectors, the wheel, and with it the cylinders, are put in motion by an exertion of the treadle below, by which the nail is drawn between the cylinders, and thereby swedged with barb teeth. On raising the foot from the treadle, the cylinders are returned to their original position by the force of the helial spring, dropping the nail into the box, and ready for another. These machines can be furnished to those who want them, for $25 each. It is supposed that a boy can make two dollars a day at this business. We have no operating machine on hand, but shall have two or three of them in a few days.

A Fair specimen of Rumsellers.

A lady, the wife of a poor inebriate, the mother of several half starved children, went to a grocery to sell some rags, that she might obtain the means of giving her children something to eat. The grocer weighed them out, and found they came to one shilling; then, turning to his slate and finding a charge of nine pence for three glasses of rum against the husband, deducted it and paid her the remainder three cents. She besought him to think of her half starved children, but she plead in vain.—*Stillwater Gazette.*

Compound Pun.

It has been remarked that the reason why the bo-hoys wanted to whip Mexico, was because she *refused to treat*, though they admit they had determined to liquor (lick her) whether she treated or not.

Female Appellation.

When Eve brought woe to all mankind
Then Adam called her *wo*-man;
But when she woo'd with love so kind
He then pronounced her *woo*-man.
But now with folly and with pride
Their husband's pockets trimming,
The ladies are so full of whims
That people call them *whim*-men.

A Novel Item in a Lawyer's Bill.

A solicitor who had been employed by a railway company in England, on making out his bill, after enumerating all other ordinary items, adds the following—"To mental anxiety, item not contained in the above, £2000," and it was paid without any demur.

During the last fourteen years 2257 bulls and 2394 horses have been killed in bull fights at Madrid.

A LIST OF PATENTS

Issued from the 5th of December to the 12th of December, 1846, inclusive.

To Thomas A. Chandler, of Rockford, Illinois, for improvement in Morticing and Tennoning Machines. Patented Dec. 9, 1846.

To Horace Baker, of M'Lean, N. Y., for improvement in apparatus for Jointing Staves. Patented Dec. 9, 1846.

To Benjamin Hinkley, of Utica, N Y., for improvement in Bedstead Fastenings. Patented Dec. 2, 1846.

To Norbert Rillieux, of New Orleans, La., for improvement in Sugar Making. Patented Dec. 10, 1846.

To Henry Pace Sen., Cincinnati, O., for improvement in Bedsteads. Patented Dec. 10, 1846.

To Kassimir Vogel, of Lowell, Mass., for improvement in Weavers Harness. Patented Dec. 10, 1846.

To Alexander Small, of York, Penn., for improvement in Car Wheels. Patented Dec. 10, 1846.

To Livingston, Roggen, Adams & Co., of Pittsburg, Penn., for improvement in attaching door knobs to their collars. Patented Dec. 10, 1846.

To William Higgs, of Utica, N. Y., for improvement in casting door knobs upon their collars. Patented Dec 10, 1846.

To Hosea Pierce, of Winchester, New Hampshire, for improvement in machine for making Cigars. Patented Dec. 10, 1846.

To William M'Cammon, of Albany, N. Y., for improvement for Brakes in Car Wheels. Patented Dec. 12, 1846.

To Samuel B. Howd, of Arcadia, N. Y., for improvement in Churns. Patented Dec. 12, 1846.

To Geo. H. Thatcher, of Ballstown, N. Y., for improvement in setting tires upon wheels. Patented Dec. 12, 1846.

To Oren Tracey, of Fitchburg, Mass., for improvement in Axles for Carriages. Patented Dec. 12, 1846.

DESIGN.

To Goodwin & Littlejohn, of New York, for design for Parlor Stove. Patented December 10, 1846.

More Curiosities.

For the new Fancy Museum.

A bottle filled with the spirit of the age.

One of the legs of a multiplication table.

Several points of the law, broken off by concussion.

The strings of a gin-sling—very strong.

The hammer with which Joe Miller's jokes were cracked.

The catridge with which a judge charged the jury.

One of Cupid's darts—made of hemlock, with a silver point.

A coin from the pot of money found under one end of the rainbow.

The box rule which is used to measure the differences twixt tweedle-dum and tweedle-dee.

A braid of hair from the tail of shank's mare

A razor from Wall street' used in shaving notes.

Two skeins of street-yarn, doubled and twisted.

A rail from the fence that neutral politicans climb on; an oar from salt river, made of a similar rail.

A pod of the pepper picked by Peter Piper.

A sample of the money that makes the mare go.

A spoke from the wheel of time.

A fan made of the tail of Job's Turkey.

A pwt. of butter made from the milk of human kindness.

The pop-gun with which the boy shot his granny.

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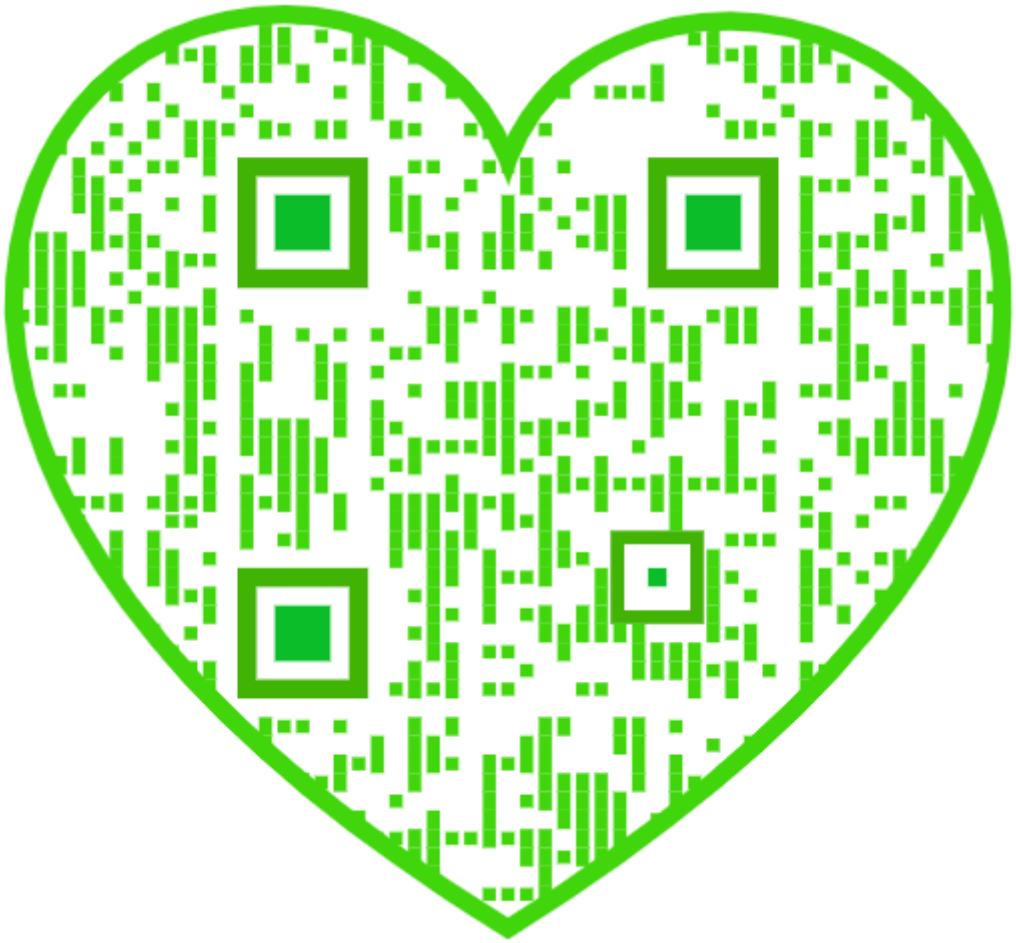

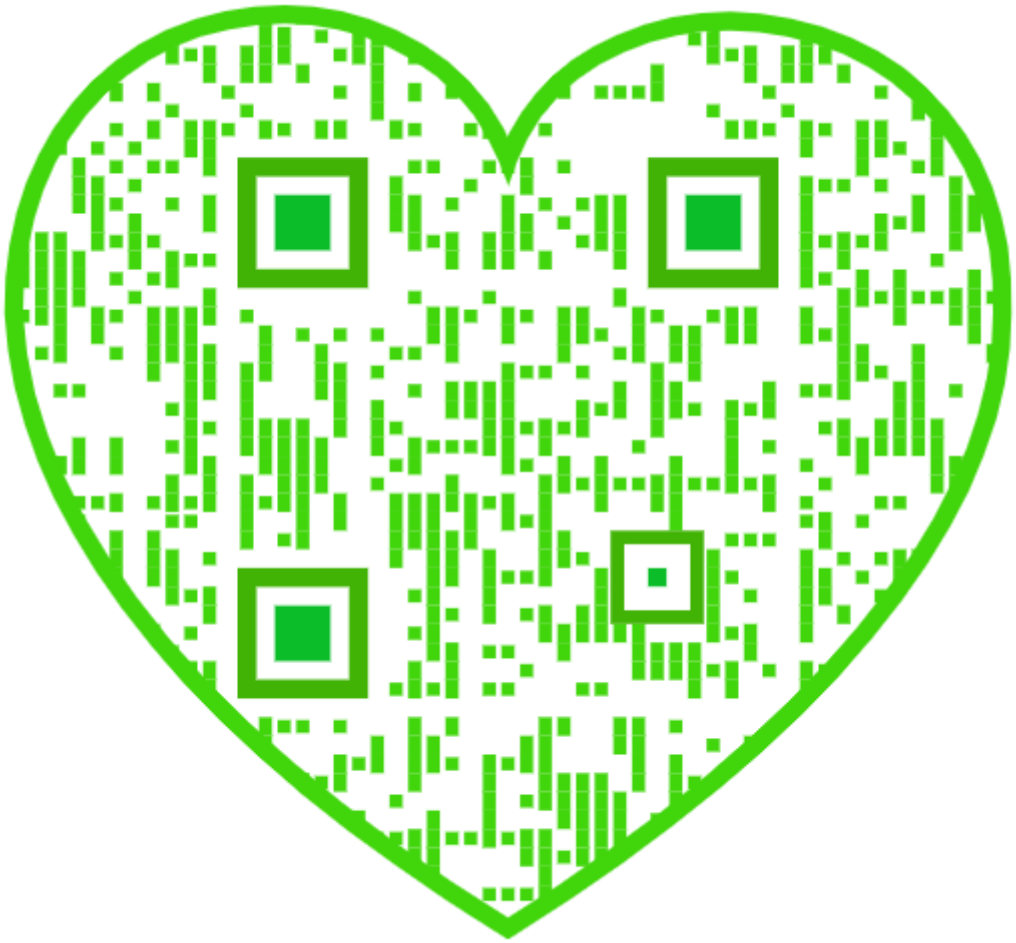

THE VAUDOIS TEACHER.

BY J. G. WHITTIER.

"Oh, lady fair, these silks of mine
Are beautiful and rare—
The richest web of the Indian loom,
Which beauty's self might wear;—
And those pearls as pure as thine own fair neck
With whose radiant light they vie;—
I have brought them with me a weary way,
Will my gentle lady buy?

And the lady smiled on the worn old man
Through the dark and clustering curls
Which veiled her brow, as she bent to view
His silks and glistening pearls;
And she placed their price in the old man's hand,
And lightly turned away;—
But she paused at the wanderer's earnest call,
"Stay, gentle lady, stay!

"Oh, lady fair, I have yet a gem,
Which a purer lustre flings
Than the diamond flash of the jeweled crown
On the lofty brow of kings?
A wonderful pearl of exceeding price,
Whose virtue shall not decay;
Whose light shall be a spell to thee,
And a blessing on the way!"

The lady glanced at the mirroring steel
Where her form of grace was seen,
Where her eyes shone clear and her dark locks waved
Their clasping pearls between;
"Bring forth that pearl of exceeding worth,
Thou traveller gray and old;
And name the price of thy precious gem,
And my pages shall count thy gold."

The cloud went off the pilgrim's brow,
As a small and meagre book,
Unchased with gold or diamond gem,
From his folding robe he took;
"Here, lady, is the pearl of price—
May it prove as much to thee.
Nay—keep thy gold—I ask it not,
For the word of God is free!"

The hoary traveller went his way—
But the gift he left behind
Had its pure and perfect work
On that high-born maiden's mind;
And she hath turned from the pride of sin
To the lowliness of truth,
And given her human heart to God
In its beautiful hour of youth.

And she hath left the grey old halls,
Where an evil faith had power,
The courtly knights of her father's train,
And the maidens of her bower;
And she hath gone to the Vaudois vales,
By lordly feet untrod,
Where the poor and needy of earth are rich
In the perfect love of God.

Better late than never.

We acknowledge ourselves inexcusable in not having before mentioned the fact that our friend Gould, the conducter of Adams and Co's Express, and who was on board the Atlantic at the time of the disaster, was by his bold energy, tact and good fortune, among the first who reached the shore. And after having buffeted the icy surf, instead of repairing like others to the neighboring house to warm his bruised and half frozen limbs, Mr. Gould took his position waist deep in water, where he remained till he had saved the lives of about twenty persons. He also saved a vast amount of the money and property entrusted to his care by brokers and others. We are happy to learn that his noble conduct on that occasion has been noticed by several disinterested individuals in Boston, who will tender to Mr. G. a suitable token of their regard for his exertions on that trying occasion.

Wind Carriages on the Prairies.

A Mr. Thomas of Independence, Mo., has invented a sailing wagon with which he has been successfully navigating the prairies.—The inventor is said to have run about, with a light breeze, at the rate of eight miles an hour and he has reached *twenty!* The wagon has a wheel twelve feet in diameter, and one foot broad. It is ship rigged, carries ballast, may be made of any size, and the inventor guarantees to run a line of them, for passengers or frieght, between Independence and Bent's Fort, thence to Santa Fe.

We have no doubt of the practicability of travelling by the power of the wind, on the level prairies, but in our opinion this might be effected with most advantage by the use of large kites with guiding lines. By this mode the tendency of the wind to overturn the carriage is wholly avoided, and the carriage would press more lightly on the earth.

A Silent Earthquake.

Many persons in Havanna assert that at the time of the hurricane at Cuba and Key West, in addition to the tempest of wind and water, they distinctly felt a violent convulsion of the earth, like the heaving of an earthquake.—The results of the storm seem to confirm this assertion The little island of San Pe, off Key West, on which the light house stood, disappeared in the storm, taking with it the light house. What is very remarkable, is that the soundings off Key West are changed. Where were shallows, now is deep water, and where was deep water now are shallows. This is the uniform mode in which convulsions of the earth seem to act.

Military Facilities.

It is reported that the English Government is preparing to avail itself of the railroad facilities of locomotion, for military operations.—All the regular troops in the kingdom are to be concentrated, and stationed at three different points, from which by the now numerous railroads, a part or the whole military force can be suddenly thrown upon any section of coast or country as occasion may require.—Uucle Sam has not yet got his net work quite perfect for such military movements: but the work is in fair progress.

The Speaking Automaton.

Mr. Faber, like many other geniuses is more successful in the exhibition of his mechanism in Europe than in this country. An English paper speaking of the automaton says; "The Automaton can plainly, at the will of the casual spectator, speak any sentence or words, in any language, sing, whisper, laugh, &c.; the organs of articulation are formed of caoutchouc—exactly resembling those appertaing to humanity—and by means of keys, and a bellows (for the lungs,) obstacles which have hitherto appeared insurmountable have been conquered."

Made up at last.

Mr. Thomas Harding, of Pyle, Eng., about fifty years ago, paid his addresses to Miss Mary Austen, but discontinued his attentions on account of some slight misunderstanding. This same couple have been recently married, however, the gentleman aged 69, and the lady 71 years. We tender them our congratulations.

New German paper.

The editor of the German paper recently started in Boston, promises to furnish his readers with 'Kreigs-und, Freidensberichete, Nachrichten von Hunger, Pestilentz, Hochzeits-und Sterbefallen, Liebesgeschichten, Zucht-polizeigcrichtsberichtsbericete, Congressmacrichlen and Luckenbissa.' It must be a valuable paper.

Loss of the North America.

The British steam ship North America was wrecked near Mount Desert, Me. on the 25th ult., in a manner strikingly similar to that of the destruction of the Atlantic She parted her steam box, and came to anchor; but dragged her anchors and drifted upon the rocks, and soon went to pieces. Passengers all saved.

Large Casting.

A bed-plate for making plate glass, and intended for the Albany Glass Company, was cast a few days since at the Hudson River Foundry in this city. The weight of the casting is about 13,000 lbs.

New Haven Canal Railroad.

It is stated in the New Haven papers that the Canal Railroad has been located, that the grading will be commenced this week, and that there is not the least doubt of the speedy eompletion of the work. The Hartford people will be compelled, in self defence, to extend a branch to meet this road at Plainville.

Patriotism and Generosity.

Many of the cities and large towns from which the citizens have volunteered for the war, have made up large and generous contributions of money and extra clothing for the use and comfort of the patriotic volunteers.—This is right, whether the war is right or not right

Cosmophonography.

It is stated in a Boston paper that Professor Gouraud has invented a system by which a person may write "with mathematical exactness the pronunciation of any language in the world." He has given the science the title above expressed, but which we cannot afford to repeat.

Lehman's Balloon.

Mr. Lehman, who ascended a few days since in a balloon from New Orleans, descended about 23 miles distant, after having been in the air 32 minutes; but in descending the balloon came in contact with a fire kindled by the negroes of the plantation, by which the gas took fire and the balloon was consumed.

The Cambridge Telescope.

The object glass for the great Cambridge Equatorial arrived last week from Munich.—Its clear aperture is over fifteen inches diameter and its focal length about 25 feet. It is said to have cost $13,000.

Growing Cotton.

A Southern planter has been sowing indigo and cotton together. Perhaps he contemplates raising blue cotton; and should he water the plants with nitric acid, he would probably raise *gun* cotton—if any.

"Thanksgiving Day on Sunday."

Under this caption many of our exchanges have stated that the Governor of Tennessee has appointed the last day of the present year as a day of thanksgiving. We cannot see what that has to do with Sunday, as the 31st of December happens to be on Thursday.

The Patriotic Children.

A son of ex-President Van Buren acted as aid to Gen. Taylor, at the siege of Monterey; a son of Henry Clay is Lieut. Colonel of a regiment of Kentucky volunteers, and a son of Daniel Webster is captain of a company of volunteers in the same service.

A Great Blow-out.

During one of the late gales, the waters of the Chesapeake and Delaware were so driven out by the wind, that vessels could neither approach nor leave the docks of Philadelphia or Baltimore, even at high water.

The King of the French.

Louis Phillippe has thirteen or fourteen magnificent palaces, and has derived $25,000,000 from the sale of firewood and timber cut from the royal forests since his accession to the throne of France, besides his allowance of $2,500,000.

An Unsuccessful Fever.

An exchange in speaking of the affairs of Monrovia, says that Mr. and Mrs. Benson had removed to White Plains to escape the coast fever which *prevailed at Monrovia but without success.*

Case of Conscience.

Ten gold watches have recently been returned to the owner in Boston, through the Post-Office; probably the thief was suspicious that they were shams.

Won the Wager.

Three men of Canonsburg, Pa., tried their powers at whiskey drinking on a wager. One of the three drank a quart and was attempting to drink more when he fell and soon died.

Is Fortune Blind?

Fifty negro slaves, who had managed to put in a dollar each to buy a ticket in the Havana Lottery, have drawn the highest prize,—$100,000. It will more than purchase their freedom.

The Old Bar que is gone.

The barque Canton, a vessel *sixty three years old* but perfectly sound, was lately wrecked on the Musele ridge, on the coast of Maine.

Generous.

The authorities of Baltimore, in grateful consideration of the patriotism and services of a soldier who has fallen fighting our battles in Mexico, have graciously granted to his bereaved widow the privilege of *pedling apples!*

A pumpkin measuring 6 feet 10 inches in circumference, and weighing 148 lbs. was exhibited to her Majesty, at Windsor, a few weeks since.

The receipts on the Philadelphia and Baltimore Railroad will, for the year up to the 1st of January next, exceed the receipts of last year by $50,000.

A correspondent of the Leeds Times says, that Dr. Jos. Wolff, in all his conversations, preachings and publishings, in 1832, insisted that this world would be at an end in fifteen years.

The express agent who came through with the President's message from Washington, average 25 miles an hour for the whole distance, 230 miles.

The Hutchinsons are singing at Philadelphia. They were remarkably successful in this city, having cleared, on an average, $1000 per evening.

Several elegant coaches manufactured in Philadelphia, have been ordered by an English gentleman, and recently shipped for Liverpool.

A synopsis of the President's Message was printed and circulated in this city about the time Congress got through the reading of it. So much for telegraph.

Some of the English convicts have become so fond of the tread mill that when relieved from it, they have solicited to be put to it again.

About thirty thousand dollars in specie has recently been recovered from the wreck of the old steamer Tennessee, (sunk in the Mississippi) by means of the diving-bell.

It was a favorite saying of Sir Walter Scott, that the wisest of our race often reserve the average stock of folly to be all expended upon some flagrant absurdity.

Twelve hundred and eighty persons signed the total adstinence pledge at the public meetings during Mr. Gough's five addresses in Albany.

Dr. Bailey, formerly editor of the Cincinnati Herald, has withdrawn from that paper to become the editor of the "National Era," at Washington.

Little Jube, (who has been to school a few days) complains that he cannot spell "pot" without pronouncing *tea pot*, e. g. P-[illegible]ot.) Will some linguist suggest a remedy.

An exchange paper remarks that Ampudia brags much more about losing Monterey than Gen. Taylor does about taking it.

The Cherokee Bible Society have distributed among their tribe during the year, 477 copies of the Bible in the Indian language.

Queen Victoria's income is $6,868 per day, $232 per hour, $4,74 per minute, 8 cents per second.

The Steamer Colorado received $1000 freight for bringing 900 live hogs from Cincinnati to Brownville, Pa.

The contract for the construction of a reservoir on Beacon Hill, Boston, has been taken at about $50,000.

A Brazillian schooner containing 550 slaves has been captured by the British brig Ferret, and ordered to Sierra Leone.

The receipts of the Western Railroad for the month of November, have averaged 20,000 dollars per week.

It appears by the seport of the Postmaster General that 5,730 miles of new mail routes, have been established within the past year.

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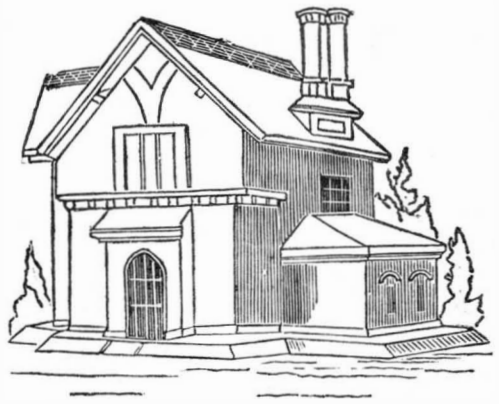
The Superiority of Compressed Air as a Motive Power.

There would be many advantages arising from the the use of compressed air as a motive power, or as a means of communicating motive power, which are not obtainable from the use of any other principle. One great advantage this principle possesses over any other is, that it will yield back in any part of the country whatever amount of power may have been spent in its production in any other part of the country—of course, minus the friction of machinery, &c. This being the case, the necessity for steam engines, whether stationary or locomotive, will, when this plan is fully developed, be nearly (if not entirely) obviated, which is another, and by no means small, advantage possessed by this principle—for, it must not be forgotten that many horrible accidents have been caused through the use of steam engines. There exists, at all times, in various parts, and frequently in every part of the country, a vast amount of unappropriated natural power, or the source from which power is derived. All that is wanting is some simple arrangement, by which this bountiful supply of power may be collected, stored up, or conveyed by pipes or tunnels to wherever it may be of service. Often have I thought, and am now confident of the fact, that every acre of land in this country may be cultivated without the aid of animal or steam power; the realization of such an idea must tend to improve the social condition of man. Another advantage of this system is, that parties requiring motive power, whether occasional or constant, would not be under the necessity of going to the expense of erecting a steam engine to obtain that power—it might be supplied much more economically by companies formed for that purpose, as well as gas or water may be.

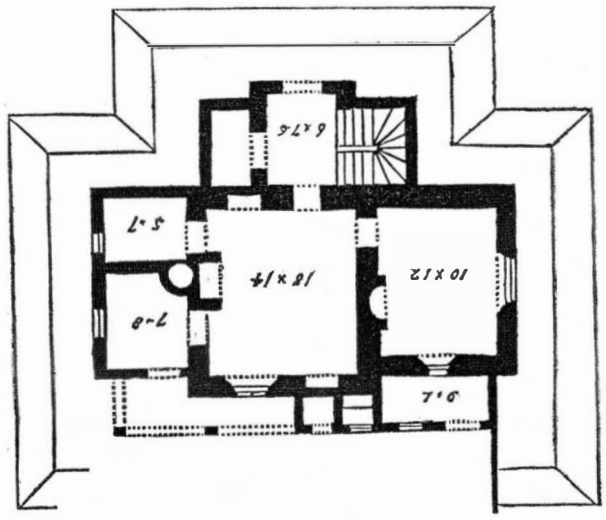
However, before the plan is adopted on so large and comprehensive a scale as has been hinted at, it must have a gradual and practical developement,—and which development being the object of my writing, I shall commence by supposing a case, to illustrate my plan.—Suppose, then, at stated intervals, a certain amount of power was for some purpose required—it is well known that, if the creation of any any amount of power to be used at intervals can be so distributed as to keep the machine from which the power is derived constantly at work, storing up the power in such a manner as to be able to obtain at any time the whole of that power without depreciation in its value, a great saving will be effected. If a machine was set at work, compressing air into a receiver of fixed dimensions, the expansive force of the air would be constantly increasing, and the maximum effect of the engine could not, by any mechanical contrivance, be secured; and when the compressed air, or stored up power, was withdrawn or used, from the receiver of fixed dimensions, its expansive force would continually diminish, and the desired result—viz: a definite amount of power for a definite period—could not, by any such arrangement, be obtained. Again, if an expanding receiver or cylinder, with a piston accurately fitted, and loaded with a weight sufficient to give the air the required force, was used, it would come very expensive; also, a considerable portion of the power of the machine would be lost by leakage and friction; butif a receiver, into which water was admitted by a pipe passing out through its bottom, and communicating with a reservoir of water of sufficient elevation above the receiver to yieid the requisite pressure per inch, was used, the maximum effect of the machine would be effectually secured, and the desired result as effectually obtained—for, if the air was forced into the upper part of this receiver, it must acquire a pressure equal to the pressure of the water in the receiver, before it would be admitted, and when in, it would have no opportunity of expanding or escaping by leakage; and for every admission of compressed air, a quantity of water of equal bulk would be displaced,—and if the receiver should at any time be filled to the bottom, and down the pipe to a level with the upper part of the bend, where it is turned up toward the reservoir, the air would then escape up that pipe; it would be the safety valve, by which all the air that was introduced after the receiver was filled down to the point spoken of, would escape, and thus a rupture of the magazine would be prevented, and nearly a uniform pressure at all times maintained. And if a larger supply of power was required at one time than another, or at longer or shorter intervals, a larger machine would obviate the difficulty, and prevent any loss of power from such cause.

(*To be concluded.*)

ARCHITECTURE.



We here present another design for a fancy cottage, or rural dwelling house, and one that will, in several respects, take a preference over those presented in former numbers. Its gentle elevation on a grass plot, is to excellent taste. By the arrangement of the 7 by 8 kitchen. and 7 by 5 store room (as shown in the plan below,), the central or dining room is somewhat restricted of light; but the 10 by 12 parlor is well lighted, and the stair in connection with tha front entry, affords a pleasing convenience, of which most designs are deficient. It will be seen that there is space for two more windows in front, of which Americans who adopt the general design, would be likely to avail themselves.



Scenes at Monterey.

The following scene was described by an officer commanding a regiment in the 2d division at the battle of Monterey. He has declared often since, that it made him feel sentimental every time he thought of it.

I was ordered by Col. Childs to take a company of my regiment and break in the doors of a row of houses in the second plaza. I had gone nearly through without seeing a soul, when, for a time the efforts, of my men were exerted in vain to get into one that seemed barricaded with care. As the hinges of the door were about to give way, a tremulous voice on the inside besought me not to break the door down, it should be opened. When unlocked, I rushed in as well as I could. over beds, cushions, chairs, ect., and to my surprise found the room occupied by about twenty-five women. As soon as they saw me and the soldiers following, they ran around me, and fell on their knees, the elder beseeching' in tones of deep distress, my protection, and to have their lives spared; the younger begging timidly not to be injured. While they were thus kneeling, and I assuring them that no harm should befall them, a pretty little woman slid into the circle and knelt close to my feet. "Senor," said she, in a soft quivering voice, "for the love you bore your mother, for the love you have for your wife, for the tender affection your heart holds for your children, oh, spare this, my poor little babe"—holding up a dimple-cheeked, bright-eyed little boy, about a year old. She never asked for herself. In spite of me tears rushed to my eyes, and I could only speak with a full heart as I told her to rise, and assured her that herself and child were perfectly safe. "Be the Holy Virgin, Capting," remarked a rough Irish soldier, wiping away a tear with the back of his hand, "won't the ould Siventh purtect them!"—That night I watched over that room, which was sacredly kept from intrusion. The next day we were blessed by these females in their attentions, for the protection we had given them, for they gave us what they had to eat and drink, and we were nearly famished.—Poor creatures, how much they were distressed. The young mother will ever be painted in my mind's eye as the devoted gaurdian of her babe. Her husband. I afterwards learned, was an officer, and was then fighting us in the city. She could not have known whether he was alive or not, and I have not heard of him.

Honey.

Honey is distinguished into three kinds; first the virgin honey which is the first produce of the swarm, obtained by draining from the combs without pressing; the second sort is thicker than the first and is procured by pressure; the third is the worst sort which is extracted by heating the combs over a fire and then pressing them. In the flowers of plants near the basis of the petals, are certain glands containing a sweet juice, which the bees suck up, and flying with it to their hives discharge it again from the stomach through the mouth into some of the cells of the comb. This honey is destined for the food of the young, but, in hard seasons, the bees are sometimes reduced to the necessity of feeding on it themselves and die of hunger after they have eaten it all up. In some places a good swarm of bees will yield in two years, nearly thirty pounds of honey; but it is most abundant in countries where flowers abound throughout the year.—From honey is made the drink called Mead.

A Strange Shot.

A bullet which was fired at a mark last week, by a young man at Lee, Mass., passed through the target and entered a house a quarter of a mile distant and lodged in a watch in the breast pocket of one of the inmates.

"How beautiful," said a lady, "the face of nature looks after a shower." "Yes, madam, and so would yours after undergoing a similar process."

A Baltimore colored barber has fallen heir to a plantation, $7000, and a number of slaves.

Homage to Revelation.

The Bible is a book of facts at least as well authenticated as any in history—a book of miricles incontestably avouched—a book of poetry, pure, natural and elevated—a book of morals, such as human wisdom never framed for the protection of human happiness. I will abide by the precepts, admire the beauty, revere the mysteries, and as far as in me lies, practice the mandates of this srcred volume; and should the ridicule of the earth and the blasphemy of hell assail me, I shall console myself by the contemplation of these blessed spirits, who in the same holy cause have toiled and suffered. In the "goodly fellowship of the saints," in the "noble army of the martyrs," in the society of the great and good and wise of every nation—if my sinfulness be not cleansed, and my darkness illuminated, at least my pretentionless admission may be excused. If I err with the luminaries I have chosen for my guides, I confess myself captivated by the loveliness of their observations. If they err, it is in a heavenly region, if they wander, it is in a field of light, if they aspire it is at all events a glorious daring, and rather than sink with infidelity into the dust, I am content to cheat myself with their vision of eternity. If I err, I err with the disciples of philosophy and virtue—with men who have drank deep at the fountain of human knowledge, but who dissolved not the pearl of their salvation in the draught.—I err with Bacon, the great confident of nature, fraught with all the learning of the past, and almost prescient of the future, yet too wise not to know his weakness, and too philosophic not to feel his ignorance. I err with Milton, rising on an eagle's wing to heaven, and like the bird of morn, soaring out of sight amid the music of his grateful piety. I err with Locke. whose pure philosophy only taught him to adore its Source, whose warm love of genuine liberty was never chilled into rebellion with its Author. I err with Newton, whose star-like spirit shot athwart the darkness of the sphere, too soon to reascend to the home of its nativity. With men like these I shall remain in error. Nor shall I desert these errors even for the drunken death-bed of a Paine, or the delirious war-hoop of those men who could erect their altar on the ruins of society.—*Charles Phillips.*

"The Long Range" of the Gospel.

"Warner's Long Range" is a good deal spoken of now-a-days as a wonderful invention for killing enemies. But let me tell Warner, and all other geniuses of his cast, that such inventions are all a humbug. Such tactics and tools are all to short-sighted and short-bitted for the work proposed. Enemies are as immortal as malignant spirits; and you might as well hope to shoot sin stone dead, as to shoot an anemy. There is but one way under heaven among men by which one can kill an enemy; and that is, *by putting coals of fire upo his head*; that does the business for him at once. Lie in wait for him, and when you catch him in trouble, faint from hunger or thirst, or shivering with cold, spring upon him, like a good Samaritan, with your hands and heart full of good gifts. Feed, him, give him drink, and warm him with clothing and words of kindness, and he is done for. You have killed an enemy and made a friend at one shot. Try it, and tell the nation to do the same.—*Selected.*

Illustrations

God's children are like stars, that shine brighter in the darkest night; like gold, that is brighter for the furnace; like incense, that becomes fragrant by burning; like the camomile plant, that grows faster when trampled upon.

An Odd Remark.

A quaint writer says that in this day of volminous writing and printing, the morals of the public are so abundantly mended that they are like a pane of glass that is patched and crossed with putty that not an atom of light can shine through it.

The following was found among the papers of *William Oldis*:—

In word and *Will I am* a friend to you,
And one friend *Old is* worth a hundred new.

A schoolmaster said to himself, "I am like a hone—I sharpen a number of *blades*, but wear myself out in doing it."

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NEW INVENTIONS.

We have seldom seen a more interesting variety of new inventions, introduced within an equal space of time, than has come under our notice within a few days past. We owe the inventor an a apology for the omission of notices of some of these in our last number.

Planing Machine.

Mr. Job Sheldon, sf New-Haven, has invented, and taken measures for patenting a planing machine on an entirely new principle and that will probably supersede those on the Woodworth principle. The boards or planks to be planed, are carried forward by an endless chain carriage of peculiar construction, and the planing cutters,—three in number,—are arranged to vibrate laterally, cutting with oblique edges across the surface, which is thereby reduced to a smooth and perfect plane. The cutters have double edges, and by slight alternate changes of position, cut in both directions; and the boards are tongued and grooved by another peculiar appendage of machinery, at the same operation. We purpose to give a more full description when we can conveniently procure a suitable engraving.

Button Making Machine.

This is the most complicated and deeply scientific combination of mechanical movements, that has come under our observation since the introduction of French's Knitting Machine, and its operation is admirable. The articles manufactured by this machine are double plate buttons, commonly known as suspender buttons. They are made principally of tin plate, of which two disks are employed, one for the face, and the other the back of the button. By the operation of the machine which is small and compact—these disks are taken from a box containing them, and carried to different dies,—swedged or struck up to the required form,—perforated with eyelets,—the face and back are brought together, and matched and the e ge of the face plate is bent under and closed upon that of the back, and the finished button is deposited in a receptacle. All this is accomplished by each revolution of a revolving circle eight inches in diameter. A full description of this machine would require several columns, and would not probably be particularly interesting to our readers. It was invented by Mr. Mr. Lucien E. Hicks, of Middletown, Ct., who has taken measures for securing a patent therefor.

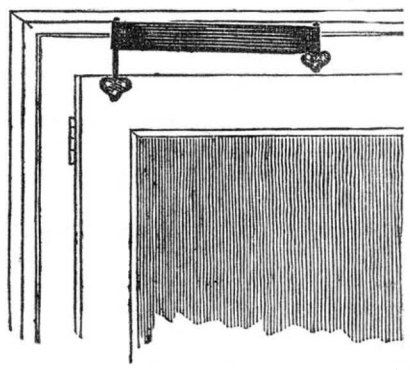
Steam Engine Protector.

Some of the the principal engineers in the city have been astonished by the combination of simplicity and utility in an apparatus invented by Mr. S. Waterman, of Hudson, N. Y. for the purpose of preventing the damage that usually accompanies the breaking of steamboat machinery. The invention consists of a single small chain which is connected to the engine and so adjusted that if the piston rod, working beam, or crank, or any important part of the machinery therewith connected, chances to break, the chain instantly, and before the engineer can know what is broken, shuts the valves, and stops the engine. The model exhibited by Mr. Waterman, is dissected or dissectable in its various parts, so that the operation of the chain apparatus, in shutting off the steam from the cylinder whenever any part of the machine is broken, is readily illustrated. The inventor is about applying for a patent, and we are informed that the owners of several of the first class steam boats, have already ordered this protecting appendage.

New Spiral-shute Water Wheel.

Much has been recently said and published on the subject of Parker's submerged water-wheels; but we have recently seen a wheel invented by Mr. Stephen Devenport of Westminster, Mass. which has some advantages in its operation, beyond any other of that class. It is a horizontal wheel, with inclined concave floats, to which the water is conducted by a shute or conducter, which passes from the bulkhead to the top of the wheel, and curving spirally in the form of a scroll, tapers nearly to a point in extending round the circumference, so that the water is distributed to every float of the wheel at the same time. The only vents by which the water can escape are at the bottom of the wheel, and in a direction nearly horizontal and opposite to that of the wheel; thus uniting the force of pressure, concussion, and re-action of the water, whereby its entire power is nearly exha sted before it leaves the wheel. Mr. Devonport has much experience in this line, and has put twenty or more of the wheels in operation in different places. He has applied for letters patent.

Ames's Gum-Elastic Door Spring.



Introduction.—We have seldom experienced more admiration or astonishment at any improvement on a small scale, than at the perfection of elasticity to which India rubber has been brought, as evinced by Ames' Door Springs; and we have no hesitation in expressing the opinion that these are destined to supersede all other kinds in present use—Among the many advantages attending the use of this improvement, are their accommodating elasticity wherein they exert the greatest force, when such is most wanted; that is, in cold and windy weather; they also apply the most force when the door is nearly closed, but relax as the door swings open. They are detached with perfect convenience, without even turning a screw, when their services are not required; and they are rather ornamental in appearance than otherwise, while they are afforded at a very low price—fifty cents only, single.

Explanation.—This spring consists of an endless strap of patent India rubber, stitched between two metallic studs one of which is attached to the door and the other to the frame or casing thereof, as shown in the engraving. It will be seen that the impulse of the spring is applied direct when the door is nearly closed, but approaches what is called in mechanics, the *dead point*,, exerting but little if any direct influence, when the door is swung back. These door springs are sold at 37 Cedar street. A specimen may be seen at this office.

Dr. Hallowell's Shower Bath.

Portable shower baths have become so common of late that our readers will hardly expect any thing very novel in that line; but the invention of Dr. Hallowell embraces some very important peculiarities which have not been heretofore introduced. The posts of the fabric are of light metallic tubes, to which are connected, at different heights, several curved horizontal tubes, perforated on the inside.—The tubular posts are connected to an elevated reservoir at the top, from which the water is admitted, by means of lever valves and cords, under the control of the bather, to a perforated showering vessel over head, or to the rib tubes, whereby the water is thrown on all parts of the bather at the same time.—The frame work which is ordinarily covered with oiled silk curtains, is connected by joints in such a manner that the whole may be readily dissected, and stowed away in a trunk or box of moderate size. Measures are in progress for procuring a patent for the combined improvements.

The following are the claims of inventors to new inventions recently patented, but of which we can give no description.

BY ASA BARBER.

Ante-dated May 18, 1846.

Improvement in machinery for cutting Flocks.

What I claim is the combination of the spiral revolving cutters and the bed of straight cutters, with the revolving screen and floats.

BY LUKE S. RAND.

Nov. 18th, 1846.

Improvement in Straw Cutters.

What I claim is the improvements applied to the lever and frame of the cutting knife, in order to regulate the balance or weight of lever applied to the knife, as well as the angle of the cutting edge of the knife with respect to the plate a ainst which it acts as above explained. Also the vibratory weighted board in combination with the cutting knife and feeding trough.

BY ISAAC LARD.

Nov. 20, 1846.

Improvement in Mowing Machines.

What I claim is the arrangement of the revolving rake for taking the grass from the scythes as fast as cut and depositing it in the rear in combination with the revolving scythes arranged and operated in the manner set forth. I also claim the arrangement of the curved bar for bearing off the heads of the grass to enabled the cutters to cut the grass more effectually, in combination with the frame.

BY JOHN T. DENNISTON

Nov. 20, 1846.

Improvement in Harness Saddles.

What I claim is the forming of such saddles by means of two castings which embrace the skirts, or skirts and jockeys between them and are so formed and combined as to brace and strengthen the lower casting their union formed by the aid of screws, without the necessity of nailing or stretching the leather.

BY ANDREW J. COOK.

Nov. 20, 1846.

Improvement in Mowing Machines

What I claim is the revolving rake constructed and combined with the cutting apparatus. Also the arrangement for steering the machine in combination with the grain cutting apparatus.

BY SAMUEL HALL.

Nov. 18th, 1846.

Improvement in machinery for cutting sheet metal into oval shapes

What I claim is the mode of shearing plates of metal into elliptical forms by means of the combination of the lower sliding centre guage or slide, the sliding centre guage, the hollow centre bolt, pattern, the pulley, a cord and weight with the cutters.

Maudslay's Improvements in paopelling Machinery.

Mr. Joseph Maudslay, of the firm of Maudslay and Field, has taken out a patent for improvement in propelling machinery, which are applicable to the screw-propeller Mr. Maudslay employs two screws, one on each side of the rudder, as has already been done in several instances, the object of which arrangement is to prevent the water thrown backwards by the screw from striking the rudder, whereby the action of the screw is attended with less shock and vibration. The screws by this arrangement are neccssarily overhung, and a strong iron upright proceeds from each neck to some convenient part of the stern of the ship, on which a sliding block is placed that may be attached at pleasure to a square frame carrying the screw. To the upper part of the frame a chain is attached, and if the screw shaft be drawn back out of the boss, the square frame may be hove up by carrying the chain to a winch—the sliding block maintaining the frame in the perpendicular position. By the use of this contrivance, therefore, the screw may be shipped or unshipped with facility.—This constitutes the chief part of Mr. Maudslay's improvements. He uses also a conical friction clutch, in which the conical projection is forced into the conical recess by means of three screws disposed near the periphery.—*London Artizan.*

Progress of Iron Shipbuilding.

Mr. James Boydell, of the Oak Farm Iron Works, England, has secured a patent for a new method of connecting wood and iron together for building ships, and also for an improved plan of fastening the sheets of iron to the ribs in vessels built entirely of iron. In the former, the ribs are of angle iron, a section of which is in this form ⊾; to the inner and broadest surfaces of these, the plates of iron are rivetted, the entire spaces between the ribs are then filled up with wood, the grain running longitudinally from stem to stern, and the outer surface flush with the outer surface of the iron ribs—over this the planking is fastened, and the sheathing then applied—the whole to be caulked in the ordinary manner. For fastening the sheets on vessels entirely composed of iron, each rib is grooved on the outer surface throughout its length; each sheet of iron has its edges turned down at right angles, which thus hook into the grooves; these are wedged tight together by wedge-formed bars hammered into the grooves, which bars are fastened inside, by driving keys through them and the ribs—the whole forming thus one compact mass.

Manufacture of large Achromatic Lenses.

By the following extract from a recent French Journal, it will be perceived, that the present highly improved state of the glass manufacrure in France, bids fair to enable the construction hereafter, without difficulty or excessives cost, of those large achromatic lenses which, though a great desideratum in astronomy, have hitherto foiled the ablest opticians.

M. Arago read (before the Academy), some passages from a letter which Mr. Bontemps wrote to him, and by which this very able director of the glass works of Choisy-le-Roi offers to the bureau of longitudes, the masses of glass necessary for the execution of the large achromatic telescopes, for a price almost incredibly small. The following are the extracts:—

"A disk of flint glass for a lens of 55 centimetres aperture, weighs about 40 kilogrames; I would estimate these 40 kilogrames at 10 francs, this is nearly the price at which I sell the flint glass in plates for lenses from 3 to 7 centimetres aperture; these 40 kilogrames at 10 francs, make - - 400 francs.
The expense of softening will be 150 "

550

I will furnish, then, this disk of 55 centimetres for 550 francs.

"A disk of the same kind has heretofore been worth 40,000 francs, when the fabrication was still in its infancy. We have sold a disk of 32 centimetres for 3000 francs; and a disk of 38 centimetres for 5000 francs.

The disk of crown glass, of 55 centimetres, will weigh about 25 kilogrames, at 10 francs, will amount to - - - - 250 francs.
The softening will cost about 200 "

Total, 450

"The disk of flint glass, and the disk of crown glass, for the lenses of 55 centimetres aperture, will cost then 1000 francs.

"A disk of flint glass of 1 metre in diameter, will weigh about 150 kilogrames, this will be, at the price of 10 francs, 1500 francs.
The cost of softening will be about 1000 "

Total, 2500

The disk of crown glass will be about the same price.

"To construct a disk of this kind, I shall be obliged to make a furnace, and larger crucibles, but the operation having in fact the same degree of certainty, the cost of this furnace will be covered by the current sale of flint and crown glass.

"It should be indispensable when we desire to make a lens of large dimensions, not to manufacture one disk solely; I will therefore place at the disposal of the bureau of longitudes, several disks of the diameter of the object glass which we desire to construct, and only that one which shall be acknowledged to be the best, shall be paid for to me; the remainder shall enter into the common consumption for optical purposes."

The School Boy.

I knew a little boy whose father was dead. He was one day writing a copy in his book, "Honor thy father and mother," he wrote a few lines more, but his memory was at work recalling to mind the happy days he had spent with his dear deceased father, and he wept. He could not go on but sobbed aloud. "What is the matter my boy," asked the teacher.—"Oh, Mr. Blake, I can't write this copy; for father is lead. Please give me another page, and cut this leaf out—I cannot write it."—[*Selected.*

Hints to Working Classes.

If a man 21 years of age, should begin to save one dollar per week, and put it at interest every year, he would have, at 31 years of age, $650, at 42 years of age $1,680; at 60 years of age, $6,150; at 71, $11,500.

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NEW YORK, DECEMBER 19, 1846.

Perpetual Motion.

[We find the following unanswered letter in a periodical, and lest some of our readers should fall into a similar error, we give this an insertion for the sake of answering it.]

To the Editor.

Although I am aware it is generally stated, that this much sought for result can never be obtained, in consequence of friction, sooner or later, bringing my machine in motion to a state of rest; still I am inclined to think that this difficulty might be overcome, if some force could be employed to produce motion in such a way, that the force should always continue the same, and have the same power of resisting friction. after the apparatus had been a length of time at work, as it had when the machine was first set in motion. It appears to me that something of this kind might be effected by means of a syphon. It is well known that if a bent tube, having one end longer than the other, has its shorter end inserted in a vessel of water, and that other end hung over the side, if the air be sucked out of the tube, from the longer end, the water will begin to flow through it from the vessel, and run until the water is on a level with the end of the tube on the outside. This is stated to be in consequence of the column of water in the longer end, being heavier than that in the shorter, and therefore drawing it down. Now it has occurred to me, that if the longer end of the syphon was made of twice the diameter of the shorter one, that it then need not be much more than half the length of the short end, and might therefore hang over the water, and instead of drawing it *from* the vessel, deposit it *in it again:* thus there would be a perpetual motion. I have never had the opportunity of putting my proposition to the test; but as, perhaps, some of your readers may have done so, or, at least, they may be able to inform me whether they see any objection to it in principle, I shall feel much obliged if you will find a corner in your interesting Magazine for this letter.

I am, Sir, yours most obediently,

Enquirer.

The grand error evinced by "Enquirer" consists in his having overlooked the fact that the water in the large end of the tube, would, like the short end of a lever, be restricted in its relative velocity; for every inch of its descent, it would be required to raise the column in the small end or section, four inches; and the influence of preponderating bodies is always in proportion to the relative motion as well as the weight of such bodies. Suppose the current reversed, and the water in the small end of the tube would be allowed to descend four inches while that in the large end would ascend but one; thus affording an equally rational argument in favor of this reversed current.

The Anodyne Vapor.

We have hitherto said but little on this subject for the reason that we are averse to drugging or artificial stimulus of any sort; but this mode of rendering people unconscious during painful operations, appears to be already in successful practice by several surgeons and dentists, and is said to produce no unpleasant nor deleterious effects. But it is sickening to think of the vile purposes to which this art will be applied as soon as the conscienceless rowdies get hold of the secret thereof.

Explosive Cotton.

The celebrated gunpowder manufacturers, Messrs. Dupont & Co., of Delaware, have succeeded in making the explosive cotton of the best quality. These gentleman are of the opinion that in the cases where cost is of secondary importance, it may be used to advantage; but in regard to its use in fire-arms it is too costly and dangerous.

The Triumph of Science.

The discovery of Leverrier's new planet is perhaps the greatest triumph of science upon record. A young French astronomer, in his study, sets himself at work to ascertain the cause of the aberrations of the planet Herschel in its orbit. Going upon the supposition that it must be owing to the influence of some other body, he first examines, and finds that it cannot be caused by the attraction of any of all the known planets. Pursuing his investigation further, he finds that another planet of a certain size placed at near twice the distance of Herschel from the sun, and revolving around that body in a given time, would produce precisely the same effects that are produced. From these elements he not only decides in his mind that such a planet exists, but calculates its size, distance from the sun, annual revolution, and actual place in the heavens, with such precision, that astronomers both in Europe and this country, and at different times, by taking his tables, and directing the telescope to the point in the heavens where its place for that evening is indicated by them, have all succeeded in finding it, and thus adding the proof of observation to the demonstration of science. This is, indeed, a most wonderful triumph.

The Explosive Cotton.

The Washington Union says that another series of experiments were made at the Arsenal in that city, in the presence of several gentlemen, under the auspices of Captain Alfred Mordecai, who has devoted much attention to the subject, and written a work on gunpowder and projectiles. The gun cotton was tested fully as to its projectile force for small arms, and partially for cannon. The firing from a musket barrel, suspended on the balistic pendulum, proved that sixty grains of well prepared cotton, were equal to one hundred and twenty grains of the very best gunpowder.—The residuum after the discharge was very inconsiderable. After eight discharges from the same gun, there was scarcely any perceptible heat. With the 24 pounder, one pound of gun cotton was nearly as strong as three pounds of ordinary powder; but it did not keep up this proportion: as the charge was increased, two pounds of cotton were about equal to four pounds of powder, A shell which required several pounds of powder to burst it, was filled with less than two ounces of the cotton, and upon being discharged it exploded most beautifully.

An Extraordinary Book.

It is a rare thing to see a book, which, while it is replete with useful instruction of immense importance, is written in such a style as to be highly entertaining, even to those who read only for amusement, and without regard to any benefit to be derived from the instruction therein contained. Such, however, is the character of a volume of 320 pages, just published by an eminent physician of this city, on the preservation of health, and the prevention, especially, of consumptive, and other diseases of the lungs. This work abounds with anecdotes and interesting historical incidents, and contains many interesting embellishments, and is afforded at the low price of 75 cents. We have a few copies bound in style for the mails; and any person remitting one dollar, will be furnished with a copy *postage paid.*

Ranlet's Architect.

The December number of this unrivalled work contains the most splendid designs and picturesque views of cottages, elevations, and plots for gardens, walks and shrubbery, that has ever been published in the United States. In short, we can give no description that will enable the reader to appreciate without examining the work. Published by W. H. Graham, Tribune Buildings;—pric 50 cents a number.

The Whitney Railroad.

Ex Senator Henderson of Mississippi, expresses a very high opinion of this project, and that the entire expense would be reimbursed to the Treasury in less than twenty years, and in the same time add fifty fold to the wealth of the nation. We are anxious to see the subject acted on by Congress, and to know who, in that body, would oppose the enterprise.

Effect of the absence of Sun and Air.

Dr. Moore, the eloquent and amiable author of "The Use of the Body in relation to the mind," says—"a tadpole confined in darkness would never become a frog, and an infant being deprived of heaven's free light, will only grow into a shapeless idiot, instead of a beauteous and reasonable thing. Hence, in the deep dark gorges and ravines of the Swiss Valais, where the direct sunshine never reaches, the hideous prevalence of idiocracy startles the traveller. It is a strange melancholy idiocy. Many citizens are incapable of any articulate speech: some are deaf, some are blind, some labor under all the privations, and all are misshapen in almost every part of the body I believe there is, in all places, a marked difference in the healthiness of houses, according to their aspect with regard to the sun and that those are decidedly the healthiest *cæteris paribus*, in which all the rooms are, during some part of the day, fully exposed to direct light. It is a well known fact that epidemics attack the inhabitants on the shady side of a street, and totally except those of the other side; and even in endemics, such as ague, the morbid influence is often thus partial in its action."—*Mechanics Jour.*

Steamboats and Locomotives in France.

The *Moniteur Industriel* gives an account of the number of steam vessels and locomotives in France, by which it appears in 1844, 238 steamboats were employed for the following purposes:—81 to carry passengers; 2 to carry goods; 100 to carry both passengers and goods; 44 to tow; 1 to tow and carry passengers; 6 to tow and carry goods; 4 to tow, and to carry both goods and passengers. The number of engines was 382, of 12,789 horses' power, equal to 38,367 draught horses, or 28,269 boat haulers. Of these 382 engines, 254 were low pressure, 28 high pressure. The average power of the low pressure engines was 33.48 horses; and of the high pressure 32.96 horses. If to the weight of the goods carried, which was 1,081,511 tons, be added that of the passengers, which may be estimated at 230,000 tons, allowing 154 lbs. for each passenger and his luggage, the total weight carried will be 1,311,571 tons. In 1843 the total number of locomotives in France was 256, of which 127 were of foreign manufacture. In 1844, the total number was 294, of which 124 were foreign manufacture.

A City in the Air.

A mirage, or *fata morgana*, was lately witnessed at Stralsund. in Pomerania At half past three o'clock, A. M., it appeared on the sea shore, about a quarter of an hour's walk from the town of Stralsund, not reversed, as is usually the case in phenomena of this kind, (and always so in the Straits of Messina, where the appearance is known by the name of the *fata morgana*), but exactly as the town appears to persons placed on that coast. The image was of a deep blue color, and stood out on a brilliant opal-colored ground, with extraordinary clearness and precision. What was most admired was the *facade* of the great and ancient Gothic church of St. Mary,—which was reflected with such exactness that it appeared to be a daguerreotype design; so that all the lines and contours of the innumerable ornaments which cover this facade, were distinguished with ease. This magnificent mirage lasted about 20 minutes, at the end of which time the sun seemed to emerge from the Baltic.—*Artizan.*

Temperance in Foreign Navies.

An extract from a letter in a late London paper, gives the glad intelligence that the Temperance Society, is having great influence over the sailors of the navy of Sweden and Norway. Out of the 444 men forming the crews of the Norwegian frigate Freea, and the Swedish sloop, the Nordsternen, which have just left Christiana for the Mediterranean, 302, that is more than two thirds of them, have desired to receive rations of tea and coffee instead of brandy.

A Great Printing Machine.

We perceive by a London paper that Messrs Dryden, the celebrated engineers, are now employed in the construction of a printing machine for the London Times, warranted to produce 12,000 impressions per hour, or the inconceiveable number of 3 sheets per second!

A Railroad Smash.

The Holydaysburg Register contains the particulars of a frightful accident and miraculous escape which occurred on Plane 10 of the Portage. On Friday last a section boat was crossing the mountain on trucks, and being under headway on the descending grade, it was discovered that the breaks of the trucks were out of order and entirely useless. Those on board now saw that to run to Holydaysburg at a fearful speed, and a smash at the end of the journey, was inevitable. Two or three leaped off, at imminent risk, but the captain, his wife, and a boy remained aboard. Onward sped the boat with increasing velocity, until, opposite the United States Hotel in the borough, she struck a train of six cars standing on the track. The first was instantly dashed to atoms, leaving not a wreck behind, and the other five were stove and destroyed. The boat was also considerably injured, but remained on the trucks; and strange to say those on board escaped without injury.

Religious Societies in France.

The Evangelical Society of France, of which Jno. Andre is President, received into the Treasury last year 231,077 francs, and expended 229.270 francs. The Evangelical Missionary Society, of which Rev. Mark Wilks is President, received 104,173 francs, and expended 162,035. The Freneh and Foreign Bible Society, of which Count de Gasperin is President, received 46,934 francs and expended 46,945 francs. The Society for the Encouragement of Elementary Instruction among the Protestants in France, received 59,500 francs and expended 58,600 francs.

Mount Vesuvius.

This celebrated volcano, which vomited forth lava after the earthquake in Tuscany, is still active; eruptions occur so frequently that at night the crater seems all on fire, and at day the smoke forms a huge pillar. Great rains and inundations have taken place in the districts at the foot of the mountains, causing great loss of life and property.

Iron in Tennessee.

The first iron manufactured in Tennessee, has been made at the Tennessee Valley Works, about fifty miles from the mouth of the Cumberland. The articles have been pronounced by competent judges to be of very superior quality. These works have been built on an enlarged scale, combining all the advantages such an establishment can possess.

The Right Sort.

They have a clergyman in Louisville, who has built a church at his own expense, and preaches to his people for nothing and finds himself.

Negro Sale.

One hundred and fifty negroes were sold at charleston, S. C. a few days since, for $46,144. The plantation on which they worked commanded only $3,500.

Tachimathy.

What has become of Dr. Clowes? According to our system of Mnemonics, we were to have been favored ere this, with not only a visit, but certain illustrations of the new and improved tachimathean system. We hope for some intelligence soon.

To New Subscribers.

Those subscribing to the Scientific American will be furnished, if desired, with all the back numbers of the present volume. Bound together at the end of the year, they will form a handsome and valuable work.

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CHEMISTRY.

Continued from No. 12.

METALS, OXIDES, EARTHS AND ALKALIES.

We arrange these classes of substances together, because, although they are to a certain extent distinct, yet they have all a very remarkable relationship, as we shall shortly see.

Many of the metals, such as iron, lead, &c. are familliarly known to every one, but there are a great many others that are very rarely to be met with. The following are some of the characters that distinguish metals from other bodies :—They are for the most part, hard and heavy, and are all opaque ; insoluble in water ; they possess a peculiar lustre ; admit of being so highly polished as to reflect light? are capable of being melted by heat, and recovering their solidity after cooling ; most of them may be extended by hammering, and all are rapid conductors of electricity. They are of various colors, and require different degrees of heat to fuse or melt them. They generally occur in the earth in what are called *veins*, and are seldom found in the pure metallic state, but generally in combination with some other substance, in which state they are called *ores*. The metals, which are all simple bodies, will be individually described hereafter.

Most metals, when subjected to heat until they become melted, combine with the oxygen of the atmosphere, and form what are called *oxides*. Oxides are destitute of those properties which distinguish the metal from which they are formed. Instead of being bright, shining, elastic, and ductile substances, they are generally a dry, earthy looking powder — Other substances besides metals, however, are capable of being converted into oxides ; and it must be kept distinctly in view, that in every case there is not so much oxygen imparted as will produce *acidification*. Oxygen frequently combines in various proportions with a substance, rendering it an oxide, but without advancing it to the state of an acid. In order to distinguish each compound thus formed, the language of chemistry is very systematic. The first is called a protoxide ; the second a deutoxide ; and the third, a peroxide.

The term *Earths* was formerly, and is still, but in a modified sense, applied to several substances which compose all the various rocks, stones, gems, mountains, and soils coving the face of the globe. They are tasteless, inodorous, dry, uninflamable, sparingly soluble, difficult of fusion, and of moderate specific gravity. These bodies will be more particularly described when we come to treat of their metallic bases. *Alkalies* may be defined as bodies which combine with acids so as to impair or neutralize their activity, and produce what are called salts. They are distinguished by properties the reverse of acids, and the two classes are generally looked upon as antagonist substances. Besides the power of neutralizing acids, there are four alkalies, namely potash, soda, ammonia, and lithia, which possess the following properties in a high degree :—They change vegetable blue to green, red to purple, and yellow to a reddish brown ; they have an acrid and urinous taste ; they are powerful corrosives of animal matter, with which they combine so as to produce neutrality ; they also unite with oils and fats forming the well known substance soap ; they combine with alchohol and water in any proportion. Four of the earths, namely, lime, baryta' strontia, and magnesia, possess alkaline properties to a considerable extent, and are hence called alkaline earths. These bodies differ from the pure alkalies, inasmuch as they become insoluble in water when neutralized by carbonic acid. Moreover, alkalies possess the power of changing vegetable colors *after* being saturated with carbonic acid, and by this criterion, they are distinguishable from the alkaline earths.

It was long observed that the properties of earths very nearly resemble those of the compounds of oxygen and metals, called metallic oxides ; but it remained for the brilliant genius of Sir Humphry Davy to show that both the earths and alkalies are metallic oxides. It appears then that the globe is one vast mass of various kinds or metals, disguised by various substances, but chiefly by oxygen. Earths and alkalies are simply metallic oxides ; whilst a farther impregnation of these substances with oxygen produces an acid; and lastly, the union of acids with alkalies, &c., gives rise to that numerous and important class of substances called salts.

Of the elemental substances at present known, six seem capable of combining with all the others- When combined with a certain portion of the other simple bodies, they form acids ; and when with the rest, they constitute bases, or alkaline bodies, which are capable of uniting with and neutralizing the acids, as we have formerly observed. To these six bodies the name of supporters of combustion has been given. The eighteen bodies, which when combined with the supporters, become acids, have been distinguished by the name of acidifiable bases. The thirty-one bodies, which, when united with the supporters become alkalies, have been called alkafiable bases. The simple supports of combusible sare as follow :—Oxygen, chlorine, bromine, iodine, fluorine, and sulphur.

THE ATMOSPHERIC RAILWAY.

The above engraving represents a train of cars on the atmospheric railway in Ireland, which connects Dublin with Kingston. It will be observed there is no locomotive drawing the cars. The moving power is obtained by air pumps attached to a continuous iron pipe laid on the road. The pipe as shown in the above engraving, has massive hoops or projections of iron The pipe is air tight, and in it is a piston fixed to the cars. As the air is exhausted, the piston moves through the pipe, drawing the cars at the rate of sixty miles an hour. To permit the passage of the bar connecting the piston to the cars there is a continuous valve on the upper side of the pipe. The valve is raised by a small wheel attached to and behind the piston, inside the pipe, and as the connecting bar passes through the valve, another wheel outside the pipe, presses down the valve to its former position. The outside wheel is followed by an apparatus which seals the valve with an air tight composition. Papier, a French engineer discovered the atmospheric principle of propulsion two centuries ago. Numerous experiments were made by him and others, but it was reserved for Jacob Samuda, an Englishman, to establish its practicability, which he did in 1840, and in 1843 the Dublin and Kingston line went into operation.

We insert the following variety as we find it in an English Scientific Magazine, not because every item is either new or interesting, but as a specimen of modern English miscellany.

Miscellanea.

The *Teviot* West India Steamer reports a casualty which happened to the American built steamer Genie, plying between St. Jago de Cuba and Batabano, with mails on board.— It appears she was on her passage from St. Jago when two of her boilers suddenly burst, and she soon after became a total wreck. The commander, engineer, two passengers, and ten of the crew lost their lives, and eight more were seriously injured.—The German papers announce that the representatives of the Zoll Verein States, assembled at Berlin, were greatly at variance as to the policy of making alterations in the import duties on foreign goods, especially threads and yarns. It was concluded, therefore, that the conference would break up without recommending any change. Prussia does not appear prepared to act upon the free trade example of this country and America.—While workmen were engaged raising the black-bank iron stone, at the open cast on Bell's-holm, sand after breaking up a large block about 5 feet square, they discovered near the centre of it a toad. It was small in size and very black. As soon as it got quit of its iron-stone prison, it commenced hopping off until it got into a pool of water, and then it showed the same dexterity in swimming as those that are not accustomed to so long an imprisonment.—The Admiralty have issued an order for the distribution of medals to the officers and men who served in the late operations on the coast of China.—The Hindostan nearly shared the same fate as the Memnon in 1843, by grounding on the night of the 27th July, off Cape Guardafui, but she fortunately escaped without any damage.—A short time ago another stupendous piece of ordnance was cast at Alger's Foundry, Boston, and when finished, will exceed Captain Stockton's celebrated 'peacemaker,' by 5000 lbs. weight. —Owing to the neglect of the safety valve, a boiler has burst at the Dardhill Iron works. The engineer and his daughter were scalded to death, and no less than ten men were injured by the explosion, of whom three have since died.—Some of the manufacturers of Ashton under-Lyne have given notice of their intention to reduce wages five per cent. The operatives refuse to accede to the proposal. At Rochdale there is a turn out for higher wages. — The Augsburg Gazette states that a great company has been formed, which will undertake to convey travellers in all directions, and to spare them the trouble of paying the expenses of the journey *en route*, by giving them coupons on their departure, which will be received in payment throughout the journey by the hotels with which the company has made arrangements. This company is to have its seat in London. It has already made all its arrangements on the route from Ostend to Alexandria, and hopes to dispatch, a short time hence, a caravan of 300 travellers, who will proceed from Ostend to Cologne by the railroads, and will ascend the Rhine for Trieste, and thence sail for Alexandria.—It is known that carbon, or platinum, or other like difficultly fusible metal, when inclosed within air-tight vessels and subject to a current of electricity will become luminous, but carbon, even in the purest states in which it has been hitherto obtainable when ignited, or rendered luminous in an air tight glass vessel by means of electric currents, has been found to give out extraneous matters, which being precipitated on the inside of the glass vessel, obscure and darken it, and platinum, when substituted for the carbon in the air tight vessel, has yielded only a feeble light. The object, therefore, has been to discover some mode of rendering carbon absolutely pure, or at least far more pure than it has ever yet been made.— This Messrs. Greener and Straite allege they have effected by taking a quantity of lampblack or powdered charcoal, or of powdered coke, and which has been purified, by the action of electricity from sulphur and any other mixtures, and digesting the same in diluted nitro-muriatic acid. The acid is then strained off, and the carbon washed several times in water, next in some weak alkaline solution, and finally in distilled water, until no traces of impurity are perceptible. The material thus purified is next brought into a state of dryness, after which it is formed into solid prisms by means of an hydraulic press. Currents of voltaic or magnetic electricity directed to these prisms will give off a brilliant

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light, and the mode of connection presents no difficulty.—A swimming school was instituted by the Eton College authorities in 1836, in order that fatal accidents to the boys on the Thames might be prevented ; a regulation being made that none who could not swim should be permitted to indulge in boating. Since that time, 1400 scholars have passed the swimming test. There are annual swimming school games, when professorships of swimming and diving, and medals, are bestowed on the most expert. A few days ago these games were held, and every thing went off well ; 217 of the present scholars were swimmers.—The iron trade of South Staffordshire, is now in a more flourishing condition than it has been for some time. Orders have been pouring in from all quarters for railway iron. A contract has just been made by several of our large ironmasters for 8000 tons of iron for the great Menai Straits Bridge, in connection with the Chester and Holyhead Railway.—The suspension of the business of the Leeds Commercial Bank was in a quarter of an hour known in Birmingham through the electric telegraph.—The French have been carrying on some fattening experimeuts on ducks: those fed on rice remained lean, those fed on buttered rice became fat.

Inventions and Improvements Patented by James Bogardus Esq. N. Y.

The first patent granted to him was for improvement in clocks, on the second of March, 1830. The principle of this improvement consists in this, that the wheel which carries the hour hand, and the barrel for the chain, cord or mainspring, turns on a common centre and are combined with the two other wheels and three pinions, constructed with such relative proportions, that the three hands which mark the hours, minutes, and seconds, shall be carried on three several axes by a weight or spring applied to the barrel, and a pendulum or balance applied to the escapement wheel in any common form, so that the hands shall mark with precision their respective portions of time.

The second is for improvements in the striking part of blocks, granted on the 18th of April, 1832. This improvement relates to the striking part of the clock, and consists in connecting the two barrels together, so that the two can be wound up together ; but after this is effected, they act independently of each other.

The third is for improvement in ever-pointed pencils, granted on the 17th of September, 1833. The improvment here patented consists in so arranging the parts of an ever pointed pencil case, that the point which holds the pencil shall be obtruded and detracted without having a slot in the side, with a ferrule and pin to draw it down, as is ordinarily done. The exterior case consists of a continuous cylindrical tube, without projections or openings. To cause the point which holds the pencil to protrude, the head of the pencil-case is made to revolve ; this acts upon an interior tube, by means of a quick-threaded screw, which should in preference, be made left handed.—The chamber for spare pencils, and the holding point, remain as heretofore. A competent workman will readily conceive, without the aid of drawings, how the respective parts should be arranged. In the specification these are clearly set forth, and the claim is to " the application of the coarse thread screw, either direct or back handed, and the general arrangement of the parts as herein described."

The fourth for separating gold from the ore, and other foreign matter,, on the 7th of April 1834. This is for the application of his universal eccentric mill to the purpose of separating gold from the ore, and the improvements added thereto are thus described by the patentee :—

" A plank of six or seven feet in length, eighteen inches tn width, and three in thickness, is to have a zig-zag or serpentine channel sunk on one surface of it, which channel may commence and terminate at the distance of a foot from the ends of the plank ; it may be about four inches wide, and sunk to the depth of two inches. This plank is to be made perfectly flat, so that a second, of similar dimensions, may, when bolted to it, make a water-tight joint, under a certain degree of hydrostatic pressure.

" An excavation, to receive two mill plates, is to be made at one end of the above described channel ; these mill plates are to consist of two circular sheets of copper, say one-fourth of an inch thick, and about ten inches in diameter. The excavation is to be made oval, as the two mill plates are not to be concentric ; the length of the oval is to exceed its width about one-third. The lower mill plate is to have a pin projecting from the centre of its under side, which, passing into a socket formed in the plank, allows it to revolve, and there four or five holes, of about an eighth of an inch in diameter, drilled through this plate, for the free passage of mercury, with which the channel is to be nearly filled.

" The upper mill plate is to have a circular hole in its centre, of an inch or more in diameter, and to this is to be screwed a cylindrical tube of twelve or fifteen feet in length, through which the ore, broken into small pieces and mixed with water, is to pass down between the plates. The lower end of this tube turns into a collar, and it may be driven by a wheel and band at its upper end, where it widens out into the form of a funnel to receive the ore and water. The tube must be inclosed to nearly its upper end, in a water-tight case attached to the upper plank.

" The farther end of the channel terminates in a small well or excavation in the lower plank, above which the upper plank is perforated, so as to allow the water and refuse ore to rise up by the hydrostatic pressure and be discharged. This opening may, if necessary, be surrounded by a rim, to increase the depth of the well. When in use, this end of the machine is to be elevated a few inches above that in which the mill plates are contained.

" The principle of this invention consists in the combining the principle of Bogardus' said Universal Mill with a channel nearly horizontal, of convenient length, terminating in a well capable of holding a large portion of mercury which the channel will contain, with a vertical tube over the plates, of a height and capacity capable of containing water sufficient, by its own power, to force its way through the mercury in said channel, the most expedient form of said channel being that of a zig-zag or serpentine, and the most expedient position thereof being that of a slightly elevated or inclined plane rising from the mill to the well. Said well having a spout to discharge the water and ore, and other heterogeneous substances, and being elevated as aforesaid, so that the mercury will run back to the mill plates, whenever forced away from them by the power of the water."

[*To be continued.*]

TO CORRESPONDENTS.

" M. K. of W."—We shall probably procure an engraving to illustrate your plan for a water-wheel, though we shall probably show that it will give less power than anticipated by the inventor.

" W. A. of Mobile."—The full length of the straightening machine, should be three inches. We have written by mail, with a drawing, addressed to W. A.

" F. H. S. of B."—Rather crowded this week but shall do you justice in our next.

" A. S. M."—It is erroneous to suppose that two small saws will require but half the power of one large one to do the same work.—Thanks for intelligence on the other subject

" A. Y. of M."—Sorry you did not give your full name, since your neglected to pay the postage.

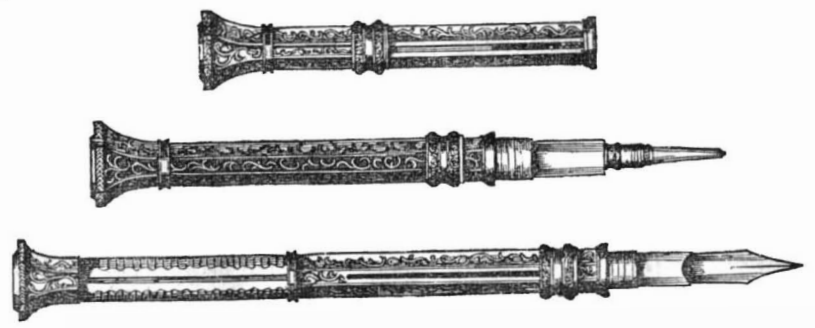
" G. S. R."—There would be a serious difficulty attending the employment of road-rails for telegraph conductors, on account of the communication between the rails and the earth. Could the rails be completely insulated from the earth, they might answer for that purpose.

Missouri Enterprise.

On account of the difficulty attending the navigation of the Missouri river, it is proposed to construct a railroad direct from St. Josephs Mo., to some point on the Mississippi.

Western Cranberries.

A boat containing 500 bushels of cranberries gathered by the Indians 300 miles up the Wisconsin river, recently arrived at St. Louis, where they readily command $2 per bushel.



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A. G. BAGLEY, No. 189 Broadway.
New York, Sept. 1, 1846. o24 tf

Sears' Pictorial Magazine.

The January number of this work is surpassing in excellence, and worth at least four times the cost. The engravings, 15 in number are of the first order, comprising a view of the city of Cincinnati, and several views of public buildings within that city. Lane Seminary, Kenyon College, and historical representations. The price of this work is only $2 per annum—25 cents single. Published by R. Sears, 128 Nassau st.

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Superintendant of Elliot Mills.
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To those desiring Drawings or Specifications, Mr. B. has the pleasure of referring to Gen. Wm. Gibbs McNiel, Civil Engineer, Prof. Renwick, Columbia College, Prof. Morse, Jno. Lee.

Residence, No. 10 Carroll Place ; office No. 23 Chambers street. oct. 10 tf

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On the Theory of Photographic Action,

Illustrating the connection between the Photographic Agent and Electricity.

BY J. NOTT, ESQ.

Mr. Nott proceeded to say that "since the discovery of Photography, there is, perhaps, no branch of electrical physics more interesting than that which comprehends the phenomena of phosphorescence. For though light be the apprrent agent in the production of the photographic picture, yet the accompanying circumstances can only be satisfactorily explained by a reference to electrical principles. Light is a term merely relative to us ; but light itself has no absolute existence any more than sound : then how unphilosophic are the terms latent light, and light in darkness, which we sometimes hear—as if that which is merely an effect could be regarded as a cause, or as a physical force, at the same time that we know it is not possible to demonstrate the existence of any other physical force in nature than electricity. Light is, therefore, only an attendant circumstance in the production of the photographic picture ; and this seems proved by the fact of one body impressing its image upon another in the dark, when the bodies are approximated at what, in electrical phraseology, is called the striking distance. As light, then, cannot be regarded as the photographic agent, electricity, which, in all probability, is the principle of light, would seem to be ; and the effects produced, when phosphorescence is developed through juxta-posed transparent media, of different densities or electrical affinities, bear so striking an analogy to those which are produced upon a sensitive surface when exposed to the action of light, reflected from bodies in different of intensity, as to render it more than probable, that what is understood by the term photography, is a simple case of phosphorescence by insolation. For, as we find that some parts of the sensitive surface then exhibit what may be called an elective affinity for certain substances, while others do not, these effects can only be the result of simultaneous attractions and repulsions ; the manifestation of which is inconceivable independently of the presence of electricitry.—The question then arises, if the photographic picture be the result of electrical action, why may not the color as well as the contour of bodies be taken down, seeing that color is not a property of matter, but is a property of light ? All bodies are seen only by reflected light, and their colors vary in tint according to the position of the spectator, with respect to the plane of reflexion. For instance, in the normal of the plane of reflexion, the color of bodies is most distinct ; and at every deviation of this point the local tint changes, and, in many cases, is extinguished when the eye of the spectator reaches the angle of total reflexion. Thus, then, when the reflected light is the strongest, the color of bodies is least perceptible, and vice versa. These considerations induced me to try what comparative effects would be produced upon a sensitive surface by light reflected at various angles of incidence from the plane of the picture. The effects which were thus produeed were analogous to those which are observed in nature ; the local tints of the bodies represented varying with every change that was made in the angle of reflexion in which the picture was taken down, and the direct ray invariably gave less picturesque results than when a parallel glass was used. In some specimens taken with the parallel glass, when they were looked at directly, all the appearances of a radiating reflexion were presented ; and, when looked at obliquely, all those of a specular reflexion, as if the sun were actually shining within the picture itself. These results gave promise that some remarkable effect would be produced by polarized light : I therefore had a small sun-dial made, the style of which was formed by a bit of very fine silver wire ; and from the centre of the dial a bit af the same wire was erected perpendicularly so that the hour angle and the sun's azimuth were given at the same instant. By means of this instrument, I was able to determine, with accuracy, the position of the sun with respect to the plane of the picture that I wished to make a photographic representative of ; the glass of the camera was also made adjustable to the polarizing angle by an attached graduated quadrant. When, by these means, the light was polarized into the camera, by a double reflexion, from the plane of the picture and from the parallel glass, I found that the objects in deep shadow and those in sunlight were taken down simultaneously and with equal precision, without the slightest trace of solarization : exhibiting a sunlight view of the greatest truth and beauty, in which the transparency of the shadows, and the effect of distance produced by an exquisite gradation of tint, are such as Art could scarcely hope to imitate. This result of polarized light seems doubly interesting since the recent discovery of Mr. Faraday, where a ray of extinguished polarized light is re-illumined by electricity. How far this discovery may enable us to determine the nature of the active agent concerned in the production of the photographic picture, I will not, at the present moment presume to decide."

Electricity——A Pleasing Experiment.

Nothwithstanding the effects of the wonderful power of electricity are continually before us, and we are constantly witnessing its wonderful phenomena, with all the mysterious developments and results which it produces, we can scarcely realize how inseperably connected it is with all the various and ramified workings and changes of the natural world, and its consequent connections with our own vital properties and powers. Tne *Mechanics' Magazine* relates a simple and pleasing experiment, illustrative of its singular effect, from a simple sheet of foolscap paper. The Magazine says :

Place an iron-japanned tea-tray on a dry, clean beaker glass ; then take a sheet of foolscap writing paper, and hold it close to the fire until its hygrometric moisture is dissipated, but not so as to scorch it ; in this state it is one of the finest electrics we have. Hold one end down on a table with the finger and thumb and give it about a dozen strokes with a large piece of India rubber from the left to the right beginning at the top. Now take it up by two of the corners and bring it over the tray, and it will fall down on it like a stone ; if the finger be now brought under the tray, a sensible shock will be felt. Now lay a needle on the tray, with its point projecting outwards, remove the paper, and a star sign of the negative electricity will be seen ; return the paper and the positive brush will appear. In fact, it forms a very extemporaneous electophorous, which will give a spark an inch long, and strong enough to set fire to some combustible bodies, and to exhibit all the electric phenomena not requiring coated surfaces. If four beaker glasses be placed on the floor, and a book placed upon them, a person may stand on them insulated ; if he then holds the tray vertically, the paper will adhere strongly to it, and sparks may be drawn from any part of his body, or he may draw sparks from any other person as the case may be ; or he may set fire to some inflamable bodies touching them with a piece of ice.

Ivory.

Ivory is softened in the following manner : put your article into a mixture composed of three ounces of nitre and fifteen of spring water. In three or four days it will become so soft as to obey your fingers. In this state it may be beautifully colored by plunging it into spirits of wine, in which the desired color has been previously dissolved. When sufficiently colored, extract, and give it any form you desire. The piece may be then hardened by wrapping it up in a piece of white paper, and covering with old common salt, very dry. It should remain in this situation for twenty-four hours. Ivory is marked with the following fluid : Nitrate of silver 2 parts ; nitric acid one part ; water seven parts; Mix.

A Chemical Curiosity.

Into a vial containing a small quantity of sulphuret of iron, pour a little diluted sulphuric acid. Sulphuretted hydrogen, a gas extremely fetid and disagreeable, will be immediately produced ; though the ingredients here employed were destitute of smell

Projectiles.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

A recent number of the London Artizan contains the results of a variety of experiments made by Sir George Cayley on the subject of different forms of shot, three of which are represented, figures 1, 2 and 3 in the cut. The explanation of these figures, with the result of the experiments, we give in his own words.

"Fig. 1 is an iron shot, made heavy in front and furnished with feathers placed spirally, similar to those of an arrow. As this form of shot leaves spaces between the ends of the feathers, a wooden wadding was used in addition to the usual wadding, in order that the whole force of the powder should be communicated to the missile. These waddings were, however, found to be inadequate, being blown through the spaces formed by the feathers ;—and the axis of the missile did not preserve the line of its flight, nor did it acquire the rotary rifle-action. This form, when elongated to resemble, an arrow more closely, was shattered by the explosive impulse of the powder.

"Fig. 2 is a somewhat similar projectile, upon which a cylindrical wooden wadding is placed, so as to fill the bore of the gun, and preserve the missile concentric with the bore. This wadding is shod with a ring of iron in front, and presses against a shoulder formed upon the shot. This shot did not fly far ; the tail vibrated from side to side, and the resistance thus created soon caused the shot to fall down.

"Fig, 3 is a shot with oblique feathers of great length, which preserves it concentric with the barrel of the gun : this shot generally went well without vibrating, spinning round on its axis perfectly, and its range exceeded that of the round shot by a quarter of a mile. Its chief defect is that it requires a wooden wadding, which would endanger intermediate objects ; otherwise it might be improved, as Sir George Cayley suggests, by a slight enlargement of the hinder part."

Now it appears to us that there was much awkwardness and deficiency of rational science evinced in every experiment above described. It is time for all professors of mechanical science to know that no form nor figure within the extent of geometry, will encounter so little resistance in proportion to its diameter, in passing through fluids of any kind, as the revoloidal circular spindle,— the figure represented in figure 4. By the attachment of transverse *feathers* (thin metallic plates) it is kept straight in its course, even when cast solid : but it may easily be cast with a hollow centre in the rearward part. No other than common gun wadding is required, but a substantial metallic disk should be adjusted between the wadding and the shot, and if the length of the spindle be equal to five diameters, the atmospheric resistance encountered will be less than 1—100 of that encountered by a round shot. We have heretofore proved the practicability of throwing a projectile of this form, to the distance of 30, 40, or even 50 miles.

Preventing the Oxidation of Iron.

The first improvement consists in adding to pig iron, when in a state of fusion, from two to ten per cent of copper, tin, nickel, or antimony, whereby it is rendered more malleable and less subject to oxidation. The second improvement consists in coating iron with steel, or with a species of iron containing less carbon than common cast metal ; by adding one part of blister steel to four parts of molten cast iron, and then continuing to add scrap to the molten mass, until an iron rod is no longer rendered brittle by being dipped in the mixture. With this iron, common iron is coated in the same manner as in the case of covering iron with brass. The third improvement consists in case-hardening iron, and preventing it from rusting, by the use of the ferrocyanide of sodium, calcium or barium. An alkaline bath, formed with carbonate of soda or any of the other alkalies, is used in conjunction with the ferrocyonide. The iron to be case-hardened, requires to be heated to nearly a red heat, after which it is to be plunged in the ferrocyanide previously fused in another vessel.

To clean Britannia Ware.

Britannia ware should be first rubbed with a woollen cloth and sweet oil : then washed in water and suds, and rubbed with soft leather and whiting. Thus treated it will retain its beauty to the last.

Fattening Turkeys.

Experiments have been successfully tried of shutting up turkeys in a small room made perfectly dark. They were fattened it is said, in one quarter of the usual time. The reason assigned is, that they are thus kept still, and have nothing else to attract their attention.

A Solid from Gas.

Carbonic acid gas and ammonical gas being brought in contact instantly transform themselves into a solid called carbonate of ammonia.

Preservation of Apples.

It is said that apples dipped in melted wax, and packed in dry chopped straw, will remain perfectly sound for a long period. This experiment is well worth trying.

Miss Burdett Couts.

The name of this young English lady and heiress, has acquired considerable notoriety in consequence of a rumored intention of marriage to Louis Napoleon ; but this rumor has been contradicted and superseded by a report that she has been influenced by the ministers of bigotry, and consented to give $100,000 to build an expensive church and support the clerical dignitaries therewith connected.

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